

The Structural Ambiguity of PPs Containing Nominalized Infinitives

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1. Introduction

The topic of this paper is the syntactic and semantic behavior of prepositional phrases in German in which a nominalized infinitive is governed by the preposition *bei*:

- (1) a. *ihr Mann ist beim Spülen*
her husband is by-DEF do-the-dishes-INF
'her husband is doing the dishes'
- b. *sie hat ihren Mann beim Spülen beobachtet*
she has her husband by-DEF do-the-dishes-INF observed
'she observed her husband (who was) doing the dishes'
- c. *er hat beim Spülen seine Frau geküsst*
he has by-DEF do-the-dishes-INF his wife kissed
'he kissed his wife (while he was) doing the dishes'

It will be shown that the *beim*-PP occurs in different syntactic base positions, namely in predicative position, as illustrated in (1a), in object-internal position (1b), and in object-external position (1c). Each position is systematically connected to a particular semantic interpretation and the paper will show how this interpretation comes about compositionally, with a particular emphasis on the semantic relation between the event denoted by the main verb and the event introduced by the PP-internal infinitive. It will finally be argued that the differences between (1b) and (1c) point to the different status of the *beim*-PP as an argument vs. an adjunct.

The structure of the paper is as follows: in section 2 I will carry out a number of tests that reveal the different syntactic base positions in which *beim*-PPs occur. Section 3 explores the meaning of the PP in these different positions, discussing its temporal and aspectual contribution as well as the identification of the agent of the event referred to by the infinitive. Section 4 concludes this paper.¹

2. The syntax of *beim*-PPs

2.1 The internal structure of the *beim*-PP

In German, a number of prepositions can govern nominalized infinitives (NIs), among them *an* 'at', *bei* 'by', *ohne* 'without', *gegen* 'against', *mit* 'with', *von* 'from', *während* 'while' and others. Some of these PPs contribute to the aspectual and temporal structure of the overall proposition:

¹ I'm grateful to Jennifer R. Austin and an anonymous reviewer for comments and to Cynthia Allen and Avery Andrews for having me as a guest at Australian National University during which time I wrote this paper.

- (2) a. *er hat beim Spülen geraucht*
 he has by-DEF do-the-dishes-INF smoked
 ‘he smoked while doing the dishes’
- b. *er hat vom Spülen ganz rauhe Hände*
 he has from-DEF do-the-dishes-INF all rough hands
 ‘his hands were all rough from doing the dishes’
- c. *er hat während des Spülens geraucht*
 he has while DEF do-the-dishes-INF smoked
 ‘he smoked while doing the dishes’
- d. *er war den ganzen Abend am Spülen*
 he was the whole evening at-DEF do-the-dishes-INF
 ‘he was doing the dishes the whole evening’

The preposition *bei* governs an NP in dative case, which is marked on the determiner but has no overt marker on the infinitive. Like some other prepositions *bei* shows obligatory contraction of the preposition and the definite determiner. The non-contracted form is only grammatical when the determiner is stressed, which is hardly acceptable when the preposition is followed by a nominalized infinitive:

- (3) *bei dem Spülen > beim Spülen*
 by DEF-DAT-SG do-the-dishes-INF by-DEF-DAT-SG do-the-dishes-INF

2.2 Predicative position

In predicative position, the *beim*-PP occurs with a form of the copula *sein* ‘to be’. The predicative position is unusual for PPs containing NIs. Apart from NIs governed by *bei*, only those governed by *an* can be found in this position.

- (4) a. *die Kinder sind am Schwimmen*
 the children are at-DEF swim-INF
 ‘the children are swimming’
- b. *die Kinder sind beim Schwimmen*
 the children are by-DEF swim-INF
 ‘the children are swimming’

Both constructions in (4) exhibit progressive meaning and show lexical restrictions typical for the progressive; e. g., they don’t allow stative and punctual verbs of certain kinds like *lieben* ‘to love’ or *zerbrechen* ‘to break’.²

In contrast to the highly grammaticalized English progressive, the use of both German constructions is optional. They can be replaced by the simple verb form. It can be shown, though, that the *am*-construction is more grammaticalized than the *beim*-construction:

- i) Object incorporation: Both constructions are alike in that they allow the incorporation of a non-referential object into the verb (5a).
- ii) External direct object: A direct object external to the PP is not possible with the *beim*-PP while it is common with the *am*-construction in some regional varieties of German, particularly in the Rhine-Ruhr area (5b).

² For the German progressive and more distinctions between the two constructions see also Zifonun et al. (1997: 1877ff) and Krause (2002).

- iii) External adverbials: Similarly, PP-external adverbials are not possible with the *beim*-construction, but do occur with the *am*-construction in some variants of German (5c). Even here, only particular adverbials are possible.
- iv) Internal adjectives: Both constructions don't allow adjectival modification of the NI (5d).
- v) PP-internal genitive: The expression of the internal argument as a genitive NP is rather odd with the *am*-construction while possible with the *beim*-construction (5e).
- vi) Adverbial use: Only the *beim*-construction can also be used as an adverbial (5f, see also section 2.3).

- (5) a. *er ist am / beim Kaffeekochen*
 he is at-DEF / by-DEF coffee-cook-INF
 'he is making coffee'
- b. *sie sind ihre Reise am / *beim Planen*
 they are their journey-ACC at-DEF / by-DEF plan-INF
 'they are planning their journey'
- c. *sie ist hart am / *beim Arbeiten*
 she is hard(ADV) at-DEF / by-DEF work-INF
 'she is working hard'
- d. *sie ist *am / *beim harten Arbeiten*
 she is at-DEF / by-DEF hard(ADJ) work-INF
 'she is working hard'
- e. *sie sind ??am / beim Planen ihrer Reise*
 they are at-DEF / by-DEF plan-INF their journey-GEN
 'they are planning their journey'
- f. *er hat *am / beim Spülen gesungen*
 he has at-DEF / by-DEF do-the-dishes-INF sung
 'he sang (while he was) doing the dishes'

This short overview shows that the *am*-construction doesn't retain many properties of a typical PP. The infinitive governs a direct object and not a genitive NP, and it allows adverbial but not adjectival modifiers. In this respect it is more grammaticalized as a progressive form than the *beim*-construction. But even the NI within the *beim*-construction has lost some of its nominal properties in that it doesn't allow adjectival modification which is in principle possible with PP-internal NIs:

- (6) *das kommt vom harten Arbeiten*
 that comes from-DEF hard(ADJ) work-INF
 'that is the result of working hard'

2.3 Object-internal vs. object-external position

Let us assume the following scenario:

“Jamaal is shaving. While he is doing that he is explaining how to solve the algebra exercise to his children.”

Referring to this scenario as Jamaal helping his children, both the shaving and the doing of the homework can be expressed by *beim*-PPs. The *beim*-PPs will be located in the “Mittelfeld”, in our examples the area between the finite auxiliary and the participle.

- (7) a. *Jamaal hat seinen Kindern beim Rasieren geholfen*
 Jamaal has his children by-DEF shave-INF helped
 ‘Jamaal helped his children (while he was) shaving’
 b. *Jamaal hat seinen Kindern beim Hausaufgabenmachen geholfen*
 Jamaal has his children by-DEF homework-do-INF helped
 ‘Jamaal helped his children do their homework’

Although in both cases the *beim*-PP assumes the same surface position, it can be shown that they differ in their base position.³ In (7a) the PP reflects an object-external base position (i. e., above the object), in (7b) an object-internal base position (i. e., below the object).⁴ The following phenomena support this assumption:

- i) Interrogative pronouns: The two PPs are associated with different interrogative pronouns. *Wobei* (lit. ‘where-by’) is the interrogative pronoun for the internal PP (8a), *wann* ‘when’ the one for the external one (8b); thus, internal and external *beim*-PPs seem to assume different roles:

- (8) a. Q: *Wobei hat er den Kindern geholfen?*
 Q: where-by has he the children helped?
 A: *Beim Hausaufgabenmachen.* / *??Beim Rasieren.*
 A: by-DEF homework-do-INF / by-DEF shave-INF
 b. Q: *Wann hat er den Kindern geholfen?*
 Q: when has he the children helped?
 A: **Beim Hausaufgabenmachen.* / *Beim Rasieren.*
 A: by-DEF homework-do-INF / by-DEF shave-INF

- ii) Topicalization: Only internal PPs can be topicalized together with a past participle (9a); the German ‘Vorfeld’, i. e. the area before the finite verb, is assumed to allow only one constituent. If the internal PP is verb-adjacent in base position it should be able to get fronted together with the verb. Fronting of the external PP together with the participle is excluded as in (9b), though, since a V-projection containing a trace cannot be topicalized if the antecedent remains in the ‘Mittelfeld’ (cf. Frey 2000):

- (9) a. [*Beim Hausaufgabenmachen geholfen*]_i hat er den Kindern
 [by-DEF homework-do-INF help-PASTPART]_i has he the children
beim Rasieren t_i.
 by-DEF shave-INF t_i.
 b. *??[Beim Rasieren* t_j *geholfen]*_i hat er den Kindern
 [by-DEF shave-INF t_j help-PASTPART]_i has he the children
 [*beim Hausaufgabenmachen*]_j t_i.
 [by-DEF homework-do-INF]_j t_i.

- iii) Focus projection: In German, a context which is assumed to reveal basic word order is when the verb-adjacent constituent is the focus exponent and yields wide focus. (A sentence has wide focus when it is a possible answer to questions of the type *What happened?*). The information structure data show that the *beim*-PP is in base position in (10a) but not in (11a).

³ For diagnostics of adverbial base positions in the German ‘Mittelfeld’ cf. Frey & Pittner (1998), Frey (2000), Maienborn (2001), Pittner (to appear 2004).

⁴ This distinction has been shown by Maienborn (2001) to hold for locative adverbials (see also section 4).

- (10) a. *Jamaal hat seinen Kindern beim HAUSAUFGABENMACHEN geholfen*
 (wide focus wrt. the scenario)
 Jamaal has his children by-DEF homework-do-INF helped
- b. *??Jamaal hat beim Hausaufgabenmachen seinen KINDERN geholfen*
 (narrow focus wrt. the scenario)
 Jamaal has by-DEF homework-do-INF his children helped
- (11) a. *Jamaal hat seinen Kindern beim RASIEREN geholfen* (narrow foc. wrt. scen.)⁵
 Jamaal has his children by-DEF shave-INF helped
- b. *Jamaal hat beim Rasieren seinen KINDERN geholfen* (wide focus wrt. scen.)
 Jamaal has by-DEF shave-INF his children helped
- iv) Surface position: *beim Hausaufgabenmachen* in contrast to *beim Rasieren* is rather bad in a surface position too far from the verb (10b).

The data have shown that the two *beim*-PPs in (7) behave differently syntactically. They either assume an object-internal base position in which they occur adjacent to the verb (yielding wide focus when the *beim*-PP is the focus exponent; topicalizable with V) or an object-external base position in which they occur to the left of the object (yielding narrow focus when the *beim*-PP is the focus exponent; not topicalizable with V):

SUBJECT > EXTERNAL *BEIM*-PP > OBJECT > INTERNAL *BEIM*-PP > VERB

This syntactic distribution suggests that the external *beim*-PP is a regular adjunct while the internal one assumes a position typical for arguments. This assumption is also borne out by the semantics of the construction, as we will see in the next chapter.

3. The Semantics of *beim*-PPs

3.1 The preposition *bei*

The preposition *bei* goes back to Germanic **bi* and Indoeuropean **ambhi/*bhi*, originally meaning ‘around’. It is related to English *by*, Latin *ambi*, and Greek *amphí*. In Modern German it displays a variety of different uses: i) Locative uses (spatial adjacency, also in more metaphorical senses), (12), ii) Temporal/aspectual uses (cotemporality and the uses in ex. 1) (13), iii) Other uses (conditional, modal, instrumental, etc.) (14):

- (12) a. *er steht da drüben beim Präsidenten / Buffettisch*
 ‘he is standing over there close to the president / buffet table’
- b. *er ist bei einer Schokoladenfabrik angestellt*
 ‘he is employed at a chocolate factory’
- c. *er hat das bei Goethe gelesen*
 ‘he read that in Goethe’
- (13) a. *ich habe ihn bei einer Geburtstagsfeier kennengelernt*
 ‘I met him at a birthday party’
- b. *wir werden bei Sonnenaufgang zurück sein*
 ‘we will be back at sunrise’

⁵ Sentence (11a) has a wide focus reading, too, of course, which would hold for a different scenario in which the children were shaving. In this case, *beim Rasieren* would indeed be in object-internal base position.

- (14) a. *bei Sonnenschein findet das Konzert draußen statt*
 ‘in case of sunshine the concert will take place outside’
 b. *wir können bei gleichem Input mehr produzieren*
 ‘we can produce more with the same input’

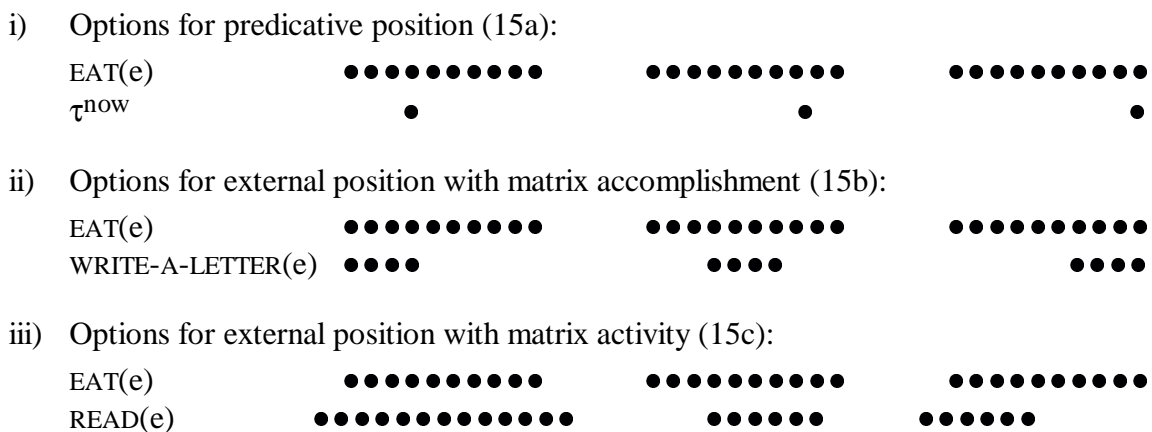
This overview serves as the background for the more explicit semantics given for the *beim*+NI construction in the following sections, in which I will have a closer look at the temporal and aspectual interpretation of *beim*-PPs, at the identification of the agent of the NI referent, at some elements of the locative use of *bei* retained in the *beim*-NI phrases, and at the influence of the main verb on the interpretation of the NI.

3.2 Temporal interpretation

In order to explore the temporal contribution of the *beim*-PP let us first have a look at the following three cases: i) *beim*-PP in predicative position (15a), ii) in external position with accomplishment VP in the matrix sentence (15b), iii) in external position with activity VP in the matrix sentence (15c).

- (15) a. *Rebecca ist beim Essen*
 Rebecca is by-DEF eat-INF
 ‘Rebecca is eating’
 b. *Rebecca hat beim Essen einen Brief geschrieben*
 Rebecca has by-DEF eat-INF a letter written
 ‘Rebecca has written / wrote a letter while eating’
 c. *Rebecca hat beim Essen gelesen*
 Rebecca has by-DEF eat-INF read
 ‘Rebecca was reading while eating’

In predicative position (15a) the reference time (here the time of utterance ‘ τ^{now} ’) is included within the run time of the NI-event *e*. In external position with an accomplishment VP in the matrix sentence (15b), the time of the matrix event *e'* is (completely) included in the time of *e*. In external position with an activity VP in the matrix sentence (15c), the time of the matrix event *e'* can be completely contained in the time of *e*, but it doesn’t have to be. Rebecca might have been reading before she started eating and she might have continued after the meal. These options can be visualized as follows:



Thus, the temporal interpretation cannot rely on event inclusion alone. We also have to make reference to the type of the matrix event, i. e., the following two conditions must

hold: i) the run time of a (proper or improper) part e'' of the event e' denoted by the matrix VP is included in the run time of the *beim*-event e , and ii) e'' must be of the same type as the whole matrix event e' . Since every part of an event of the type READ is also of the type READ, only a proper part of the whole reading event has to be included in the eating event. Since proper parts of an event referred to by *write a letter* are not of the type WRITE A LETTER (but merely of the type WRITE PART OF A LETTER), an improper part of the matrix event, i. e. the whole matrix event, has to be included in the *beim*-event:⁶

Temporal interpretation of the *beim*-PP (in predicative and object-external position)

For the *beim*-event e and the matrix event e' of type P holds:

$$P(e) \ \& \ \exists e'' [e'' \subseteq e' \ \& \ P(e'') \ \& \ \tau(e'') \subseteq \tau(e)]$$

Thus, the derivation of an expression like (16a) looks as follows. The identification of the agent of the *beim*-event and the aspectual interpretation is still left open:

- (16) a. *beim Essen* *einen Brief* *schreiben*
by-DEF eat-INF a letter write-INF
'to write a letter while eating'
b. *beim* (1st version): $\lambda Q \lambda P \lambda x' \lambda e' [P(x')(e') \ \& \ \exists e'' \exists e [Q(e) \ \& \ e'' \subseteq e' \ \& \ P(x')(e'') \ \& \ \tau(e'') \subseteq \tau(e)]]$
c. *Essen*: $\lambda e'' \exists y [EAT(e'', x, y) \ \& \ AGENT(x, e'') \ \& \ THEME(y, e'')]$
d. *beim Essen* (by functional application): $\lambda P \lambda x' \lambda e' [P(x')(e') \ \& \ \exists e'' \exists e \exists y [EAT(e, x, y) \ \& \ AGENT(x, e) \ \& \ THEME(y, e) \ \& \ e'' \subseteq e' \ \& \ P(x')(e'') \ \& \ \tau(e'') \subseteq \tau(e)]]$
e. *einen Brief schreiben* (a quantized predicate): $\lambda x \lambda e \exists y [WRITE(x, y, e) \ \& \ AGENT(x, e) \ \& \ THEME(y, e) \ \& \ LETTER(y)]$
f. *beim Essen einen Brief schreiben* (by functional application): $\lambda x' \lambda e' \exists y [WRITE(x', y, e') \ \& \ AGENT(x', e') \ \& \ THEME(y, e') \ \& \ LETTER(y) \ \& \ \exists e'' \exists e \exists y [EAT(e, x, y) \ \& \ AGENT(x, e) \ \& \ THEME(y, e) \ \& \ e'' \subseteq e' \ \& \ \exists y [WRITE(x', y, e'') \ \& \ AGENT(x', e'') \ \& \ THEME(y, e'') \ \& \ LETTER(y)]] \ \& \ \tau(e'') \subseteq \tau(e)]$

The temporal interpretation of the *beim*-PP in object-internal position differs from what we have shown to hold for the external and the predicative position. In the following sentences the *beim*-PP occurs in object-internal position, as the behavior with respect to focus reveals:

- (17) a. *Rebecca hat Jamaal beim SPÜLEN beobachtet* (wide focus)
'Rebecca observed Jamaal (who was) doing the dishes'
b. *Rebecca hat Jamaal beim SPÜLEN gestört* (wide focus)
'Rebecca disturbed Jamaal doing the dishes'
c. *Rebecca hat Jamaal beim SPÜLEN geholfen* (wide focus)
'Rebecca helped Jamaal with the dishes'
d. *Rebecca hat Jamaal beim SPÜLEN unterbrochen* (wide focus)
'Rebecca interrupted Jamaal doing the dishes'

The interpretation of temporal inclusion seems to be retained in (17a) and (17b): the time of the observing and the disturbing, respectively, is included in the time of Jamaal doing the dishes. However, in contrast to (15c), they cannot extend beyond the time of the *beim*-

⁶ The accomplishment reading is a default interpretation of *einen Brief schreiben* 'write a letter'. However, it must be conceded that most accomplishment VPs can get an activity interpretation if the right context is provided. In this case (15b) would get the same aspecto-temporal interpretation as (15c).

event. The temporal interpretation is different in the other cases: in (17c) the time of Rebecca helping Jamaal is not necessarily included in the time of Jamaal doing the dishes; she could have dried off the dishes after Jamaal had rinsed them. In (17d) the time of the interruption rather marks the end of the time of Jamaal doing the dishes. These examples show that the temporal relation between matrix event and *beim*-event is not determined by the preposition but rather by the matrix verb.

3.3 Aspectual interpretation

As far as the aspectual interpretation of the *beim*-PP goes, it is obvious that the NI within the *beim*-PP has a progressive meaning in both predicative (18a) and object-external (18b) position. In both positions the imperfective paradox shows up, i. e. neither (18a) nor (18b) implies that Rebecca completely put up the book shelf.⁷

- (18) a. *Rebecca ist beim Aufstellen des Bücherregals*
 Rebecca is by-DEF up-put-INF the bookshelf-GEN
 ‘Rebecca is putting up the bookshelf’
 b. *Rebecca hat beim Aufstellen des Bücherregals einen Herzinfarkt bekommen*
 Rebecca has by-DEF up-put-INF the bookshelf-GEN a heart attack got
 ‘Rebecca had a heart attack (while) putting up the bookshelf’

If we assume a modal interpretation of the progressive, *beim Aufstellen eines Bücherregals* ‘while putting up a bookshelf’ refers to a subevent *e* of a possible event of somebody completely putting up a book shelf. Leaving the exact modal interpretation of the progressive aside, I will assume the following:⁸

Aspectual interpretation of the *beim*-PP (in predicative and object-external position)
 The *beim*-PP denotes an event in progress, i. e. an event *e* which is part of a possibly complete event of the type denoted by the NI. In short:
 $\lambda e[\text{PROG}(e, \text{NI})]$

Extending the example in (16a) we get the following semantic derivation for (19a) with the final semantics for the preposition *bei* occurring in predicative or in object-external position:

- (19) a. *beim Essen einer Pizza einen Brief schreiben*
 by-DEF eat-INF a pizza-GEN a letter-ACC write-INF
 ‘to write a letter while eating a pizza’
 b. *beim* (2nd version): $\lambda Q\lambda P\lambda x'\lambda e'[P(x')(e') \ \& \ \exists e''\exists e[\text{PROG}(e,Q) \ \& \ e'' \subseteq e' \ \& \ P(x')(e'') \ \& \ \tau(e'') \subseteq \tau(e)]]$
 c. *Essen einer Pizza*: $\lambda e''\exists y[\text{EAT}(e'',x,y) \ \& \ \text{AGENT}(x,e'') \ \& \ \text{THEME}(y,e'') \ \& \ \text{PIZZA}(y)]$

⁷ A second question that arises is whether the aspectual interpretation is due to the nominalization of the infinitive or due to the preposition. It seems that some prepositions governing NIs rather suggest a non-progressive interpretation. At least in the following example it is entailed that Jamaal completely put up the bookshelf:

- (i) *nach dem Aufstellen des Bücherregals ging Jamaal in die Kneipe*
 after DEF up-put-INF the bookshelf-GEN went Jamaal in the pub
 ‘after having put up the bookshelf Jamaal went into the pub’

⁸ For discussions of the exact nature of the modal component cf. e. g. Landmann (1992) and Engelberg (2002).

- d. *beim Essen einer Pizza* (by functional application): $\lambda P\lambda x'\lambda e'[P(x')(e') \& \exists e''\exists e[\text{PROG}(e,\lambda e''\exists y[\text{EAT}(e'',x,y) \& \text{AGENT}(x,e'') \& \text{THEME}(y,e'') \& \text{PIZZA}(y)]) \& e'' \subseteq e' \& P(x')(e'') \& \tau(e'') \subseteq \tau(e)]]$
- e. *beim Essen einer Pizza einen Brief schreiben* (by functional application): $\lambda x'\lambda e'\exists y[\text{WRITE}(x',y,e') \& \text{AGENT}(x',e') \& \text{THEME}(y,e') \& \text{LETTER}(y)] \& \exists e''\exists e[\text{PROG}(e,\lambda e''\exists y[\text{EAT}(e'',x,y) \& \text{AGENT}(x,e'') \& \text{THEME}(y,e'') \& \text{PIZZA}(y)]) \& e'' \subseteq e' \& \exists y[\text{WRITE}(x',y,e'') \& \text{AGENT}(x',e'') \& \text{THEME}(y,e'') \& \text{LETTER}(y)] \& \tau(e'') \subseteq \tau(e)]]$

The situation is not that obvious with the *beim*-PP occurring in object-internal position. In (20a) the interpretation of the NI is clearly progressive. It is not implied that Jamaal completely put up the book shelf. In (20b) there is a strong inclination to understand that they actually succeeded in putting up the bookshelf. The progressive interpretation in (20a) might be driven by the temporal inclusion of the matrix event within the *beim*-event which is entailed while in (20b) the meaning of *help* suggests that some kind of success of the helper's actions has to be assumed.

- (20) a. *Rebecca hat Jamaal beim Aufstellen des Bücherregals beobachtet*
 Rebecca has Jamaal by-DEF up-put-INF the bookshelf-GEN observed
 'Rebecca observed Jamaal (who was) putting up the bookshelf'
- b. *Rebecca hat Jamaal beim Aufstellen des Bücherregals geholfen*
 Rebecca has Jamaal by-DEF up-put-INF the bookshelf-GEN helped
 'Rebecca helped Jamaal with putting up the bookshelf'

As with the temporal interpretation, it seems again that it is the matrix verb that influences how the *beim*-PP has to be interpreted aspectually.

3.4 Agent interpretation

In object-external position it is possible to realize the agent of the *beim*-event by a PP headed by the preposition *durch* 'through'. Since this option is rarely made use of we are left with the question how the agent is identified when it is not explicitly mentioned. The external position initially suggests that the subject of the *beim*-verb and the subject of the matrix verb have to be identified as in (21a). But a closer look shows that this is just one of many options: there are *beim*-PPs combining with impersonal matrix verbs (21b), *beim*-events whose agent can be identified with either the object or the subject of the matrix verb (21c), and even NP-internal *beim*-PPs where no possible actor is mentioned (21d).

- (21) a. *er hat beim Spülen gesungen*
 he has by-DEF do-the-dishes-INF sung
 'he sang while doing the dishes'
- b. *es hat beim Sprengen der Brücke geregnet*
 it has by-DEF blow-up-INF the bridge-GEN rained
 'it was raining while the bridge was being blown up'
- c. *er hat ihr beim Spülen geholfen, ihr Haar in Ordnung zu bringen*
 he has her by-DEF do-the-dishes-INF helped her hair in order to bring
 'he helped her to get her hair orderly while (he or she was) doing the dishes'

- d. *es ist schönes Wetter beim Sprengen gewesen*
 it is nice weather by-DEF blow-up-INF been
 ‘the weather was nice during the carrying out of the explosion’

The situation is similar in predicative position. While at first sight it seems that the subject of the sentence is always the agent of the *beim*-event as in (22a), example (22b) shows that this is not necessarily so. In this respect the *beim*-PP differs from the *am*-PP discussed in section 2.2 where only the subject referent can be understood as the agent (22c).

- (22) a. *Rebecca ist beim Essen*
 Rebecca is by-DEF eat-INF
 ‘Rebecca is eating’
 b. *Rebecca ist beim Röntgen*
 Rebecca is by-DEF x-ray-INF
 ‘Rebecca is x-raying / is being x-rayed (by somebody) / is at a place where somebody is x-raying somebody’
 c. *Rebecca ist am Röntgen*
 Rebecca is at-DEF x-ray-INF
 ‘Rebecca is x-raying’

Thus, the identification of the agent of the NI in predicative or object-internal position is a matter of context. That it is predominantly the subject of the matrix sentence that is interpreted as the agent of the *beim*-phrase is primarily due to the fact that it is a particularly salient candidate for the agent role of the NI.

In object-internal position the agent is not determined on the basis of contextual information, but is always identified with the object argument of the matrix verb: in all four examples in (17) it is Jamaal who is doing the dishes.

3.5 Locative interpretation

In 3.1 it was mentioned that *bei* was originally a locative preposition. A locative meaning is still retained when the *beim*-NI-construction occurs in predicative position. There it is usually implicitly understood that the place where the event takes place is not the place of utterance. Sentence (23a) would not be used if the speaker, talking to somebody on the phone, is standing close to the swimming pool where Rebecca is swimming. In this case the *am*-NI-construction would be appropriate. (23a) means that Rebecca is swimming at a place where you usually go swimming like the public swimming pool or the beach. The same holds for (23b) which would not be uttered if Rebecca is in the same room as the speaker.

- (23) a. *Rebecca ist beim Schwimmen*
 Rebecca is by-DEF swim-INF
 ‘Rebecca is swimming (at some other place)’
 b. *Rebecca ist beim Röntgen*
 Rebecca is by-DEF x-ray-INF
 ‘Rebecca is x-raying / is being x-rayed / ... (at some other place)’

This distance from the place of utterance seems to depend partly on the verb. With *essen* ‘to eat’ there is no such distance interpretation. I have to leave open what it is exactly that contributes to this interpretation; it certainly depends on this particular predicative construction, and probably also on the nominalized verb and the context.

3.6 Dependence on the matrix verb

The discussion so far has shown that in object-external position the contribution of the *beim*-PP is independent of the meaning of the matrix verb. In contrast, in object-internal position the interpretation of the *beim*-PP strongly depends on the matrix verb, which is reflected by the following phenomena:

- i) The progressive interpretation of the *beim*-PP is not always retained (section 3.2).
- ii) The temporal interpretation deviates from the kind of inclusion interpretation that holds for the external and predicative position. (section 3.3).
- iii) The agent of the NI is always identified with the object referent of the matrix verb (section 3.4).
- iv) While the occurrence of a *beim*-PP in external position does not depend on the matrix verb, in object-internal position it does. Verbs like *küssen* ‘kiss’ or *töten* ‘kill’ do not allow *beim*-PPs in internal position, as is revealed for example by the fact that *beim*-PPs adjacent to these verbs cannot yield wide focus if stressed:

- (24) a. *Rebecca hat Jamaal beim SPÜLEN geküsst* (narrow focus)
 ‘Rebecca kissed Jamaal while she/he was doing the dishes’
 b. *Rebecca hat Jamaal beim SPÜLEN getötet* (narrow focus)
 ‘Rebecca killed Jamaal while she/he was doing the dishes’

What makes verbs like those in (24) unsuitable for internal *beim*-PPs in contrast to those in (17)? All the matrix verbs in (17) imply or suggest the existence of a further event (besides the event the matrix verb refers to): if you help somebody he or she is usually engaged in some action in order to pursue a certain goal (17c); if you observe somebody (or something), he or she has to be involved in some event (you cannot observe a statue in the park unless it moves or you expect it to move)⁹ (17a), if you disturb somebody he or she has to be engaged in some activity, etc. The verbs in (24), in contrast, do not show any relation to an extra event the object referent is involved in.

If we consider the syntactic position of the internal *beim*-PPs and further assume that semantic argumenthood is mainly characterized by the fact that the semantic interpretation of the phrase in question is dependent on another predicate, we have to conclude that *beim*-PPs in external position are adjuncts while those in internal positions are arguments of the verb which are syntactically and semantically selected. We can capture that by integrating

⁹ This at least holds for German *beobachten* ‘observe’. With respect to English *observe*, one of the reviewers voiced his/her doubts that the person or object which is observed really has to be involved in an event. In order to substantiate my claim for the German verb, I carried out a short investigation eliciting sentences containing *beobachten* ‘observe’ from an electronic newspaper corpus (COSMAS, Institut für deutsche Sprache, Mannheim). The verb takes NPs (denoting living beings, things, events) and CPs as complements. In 80% of the cases what was predicated over in object position clearly involved an additional event. 10% of the examples had an NP object which merely suggested some kind of accompanying movement ([...] *den Südhimmel über dem Wiener Horizont unentwegt beobachten*, ‘[...] untiringly observing the southern sky above the horizon of Vienna’; [...] *ein Mädchen, das sich im Spiegel beobachtet*, ‘[...] a girl who observes herself in the mirror’). In another 10% of cases *beobachten* took a CP which reported on events only in a wider sense (*Europa beobachtet mit einer gewissen Eifersucht, daß die USA auch beim weiteren Friedensprozeß die führende Rolle spielen wollen*, ‘Europe observes with a certain jealousy that the US wants to play the leading role in the ongoing peace negotiations’). There were no cases where *beobachten* assumed a reading similar to that of ‘look at’ or other object-oriented verbs of visual perception.

the *beim*-PP into the subcategorization frame and the semantic representation of the matrix verb:

- (25) a. *beim Putzen helfen*
 by-DEF clean-INF help-INF
 ‘to help with the cleaning’
 b. *helfen*:
 SYN: V, /PP^{beim}/NP^{dat}/NP^{acc}
 SEM: $\lambda P \lambda y \lambda x \lambda e [\text{HELP}(x,y,e',e) \ \& \ \text{HELPER}(e,x) \ \& \ \text{HELPEE}(y,e) \ \& \ \exists e' [P(y)(e') \ \& \ y \text{ pursues those goals in } e' \text{ that are at issue in the helping event } e]]$
 c. *beim Putzen* (*beim* is a grammatical preposition without semantic contribution):
 $\lambda y' \lambda e \exists z [\text{CLEAN}(y',z,e) \ \& \ \text{AGENT}(y',e) \ \& \ \text{THEME}(z,e)]$
 d. *beim Putzen helfen* (by functional application):
 $\lambda y \lambda x \lambda e [\text{HELP}(x,y,e',e) \ \& \ \text{HELPER}(e,x) \ \& \ \text{HELPEE}(y,e) \ \& \ \exists e' \exists z [\text{CLEAN}(y,z,e') \ \& \ \text{AGENT}(y,e') \ \& \ \text{THEME}(z,e') \ \& \ y \text{ pursues those goals in } e' \text{ that are at issue in the helping event } e]]$

4. Summary and outlook

It has been shown that there are three syntactic positions for a *beim*-PP governing an NI: a predicative position, an object-internal position, and an object-external position. The predicative and the object-external positions share a number of semantic properties including their temporal and aspectual contribution, and the way the agent of the NI is identified. In predicative position the *beim*-PP also retains a locative interpretation. In object-external position the interpretation of the *beim*-PP almost completely depends on the meaning of the matrix verb.

This parallels Maienborn’s (1996, 2001) results. She argues that locative adverbials reveal the same syntactic differences – 26a and 26b reflect an external base position of the PP and 26c and 26d an internal one – and comparable semantic differences depending on the syntactic position:

- (26) a. *sie hat auf der Straße die MARSEILLAISE gepfiffen* (wide focus)
 she has on the street the Marseillaise whistled
 ‘she whistled the Marseillaise on the street’
 b. *sie hat die Marseillaise auf der STRASSE gepfiffen* (narrow focus)
 she has the Marseillaise on the street whistled
 ‘she whistled the Marseillaise on the street’
 c. *sie hat die Marseillaise auf den FINGERN gepfiffen* (wide focus)
 she has the Marseillaise on the fingers whistled
 ‘she whistled the Marseillaise on her fingers’
 d. *sie hat auf den Fingern die MARSEILLAISE gepfiffen* (narrow focus)
 she has on the fingers the Marseillaise whistled
 ‘she whistled the Marseillaise on her fingers’

Thus, the findings of the paper at hand reflect a much broader type of phenomenon, namely that a number of PPs occurring in the Mittelfeld and traditionally treated as adverbials are structurally ambiguous between an adjunct and an argument reading.

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